



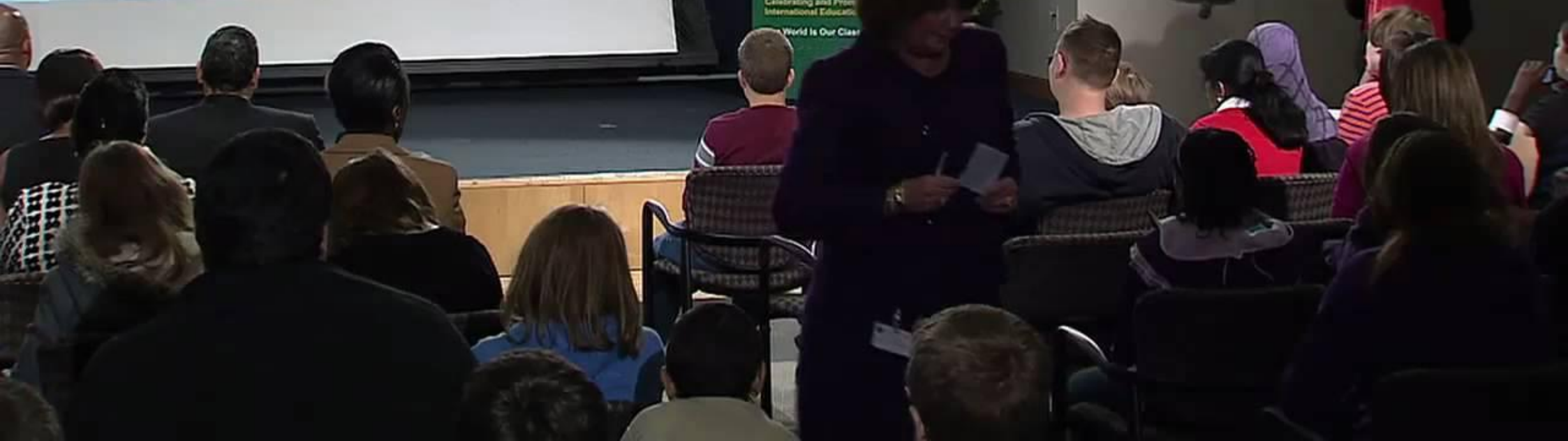
NASA Headquarters Salutes

International Education Week



K-12 International Education Overview

Celebrating and Promoting International Education
The World Is Our Classroom



1
00:00:04,470 --> 00:00:02,389
u.s department of education this is

2
00:00:07,990 --> 00:00:04,480
houston please call station for a voice

3
00:00:11,350 --> 00:00:09,350
station

4
00:00:12,629 --> 00:00:11,360
this is tony miller deputy secretary of

5
00:00:14,709 --> 00:00:12,639
education

6
00:00:17,910 --> 00:00:14,719
we are here with hundreds of students in

7
00:00:22,150 --> 00:00:20,150
of international education week how do

8
00:00:23,910 --> 00:00:22,160
you hear me i hear you well it's a

9
00:00:25,750 --> 00:00:23,920
little broken but it's great to hear you

10
00:00:27,269 --> 00:00:25,760
and great to hear all the kids there

11
00:00:30,150 --> 00:00:27,279
well great it really is exciting to be

12
00:00:31,589 --> 00:00:30,160
able to connect with you um

13
00:00:32,870 --> 00:00:31,599

let's get started i'd like to invite the

14

00:00:34,389 --> 00:00:32,880

first student to come up and ask the

15

00:00:37,350 --> 00:00:34,399

first question

16

00:00:39,670 --> 00:00:37,360

and this question is from ali at

17

00:00:42,229 --> 00:00:39,680

heart middle and do you prefer living on

18

00:00:43,910 --> 00:00:42,239

earth or in space

19

00:00:45,510 --> 00:00:43,920

hey that that's a great question and

20

00:00:46,709 --> 00:00:45,520

welcome aboard the international space

21

00:00:48,549 --> 00:00:46,719

station

22

00:00:50,950 --> 00:00:48,559

you know this is something i've dreamed

23

00:00:53,270 --> 00:00:50,960

about my entire life and so for right

24

00:00:55,430 --> 00:00:53,280

now well it's my turn to be here i'm

25

00:00:57,270 --> 00:00:55,440

glad i'm here and i i've dreamed about

26

00:00:58,709 --> 00:00:57,280

this and i'm proud to be here i have a

27

00:01:00,549 --> 00:00:58,719

big job to do

28

00:01:02,790 --> 00:01:00,559

and so this is where i want to be right

29

00:01:04,630 --> 00:01:02,800

now i'm also looking forward to going

30

00:01:06,789 --> 00:01:04,640

home in two weeks i've been up here for

31

00:01:08,390 --> 00:01:06,799

uh five months as of yesterday we

32

00:01:10,149 --> 00:01:08,400

launched five months ago

33

00:01:12,230 --> 00:01:10,159

and so it's been a long time away from

34

00:01:14,070 --> 00:01:12,240

home and i'm looking forward to going

35

00:01:15,910 --> 00:01:14,080

home and once i get home it's time to be

36

00:01:19,270 --> 00:01:15,920

there and so i look forward to being

37

00:01:21,749 --> 00:01:19,280

back on my favorite planet earth

38

00:01:24,469 --> 00:01:21,759

my name's elena and my question is how

39

00:01:27,109 --> 00:01:24,479

did your childhood education and peers

40

00:01:28,630 --> 00:01:27,119

influence your decision to join nasa

41

00:01:30,870 --> 00:01:28,640

now that's an interesting question i

42

00:01:33,190 --> 00:01:30,880

grew up in the early days of the space

43

00:01:35,270 --> 00:01:33,200

age i was born two months after the the

44

00:01:38,069 --> 00:01:35,280

first satellite was launched into space

45

00:01:40,149 --> 00:01:38,079

the russian satellite known as sputnik

46

00:01:42,149 --> 00:01:40,159

and grew up during the days when we were

47

00:01:43,990 --> 00:01:42,159

working toward the moon and and i

48

00:01:45,429 --> 00:01:44,000

remember watching the moon landings and

49

00:01:46,389 --> 00:01:45,439

dreaming about what it would be like to

50

00:01:48,389 --> 00:01:46,399

do that

51
00:01:50,230 --> 00:01:48,399
and when i was about 12 years old i was

52
00:01:51,910 --> 00:01:50,240
a boy scout on a camp out out away from

53
00:01:53,749 --> 00:01:51,920
the city lights i remember

54
00:01:55,749 --> 00:01:53,759
kind of laying on a hillside looking up

55
00:01:57,510 --> 00:01:55,759
at the stars and feeling like i was in

56
00:01:59,270 --> 00:01:57,520
the middle of them and that's when it

57
00:02:02,550 --> 00:01:59,280
really became kind of a personal dream

58
00:02:04,550 --> 00:02:02,560
for me to to do this kind of crazy thing

59
00:02:07,109 --> 00:02:04,560
but there was uh people that thought i

60
00:02:09,350 --> 00:02:07,119
was you know thought this was impossible

61
00:02:10,710 --> 00:02:09,360
thought it was a little crazy

62
00:02:13,030 --> 00:02:10,720
but there were a lot of people who

63
00:02:14,550 --> 00:02:13,040

really encouraged me too i had some

64

00:02:16,790 --> 00:02:14,560

scout leaders and teachers who

65

00:02:17,990 --> 00:02:16,800

encouraged me a lot along the way

66

00:02:19,830 --> 00:02:18,000

as well as

67

00:02:21,910 --> 00:02:19,840

family and friends who really knew me

68

00:02:23,350 --> 00:02:21,920

and really believed in me then and that

69

00:02:25,030 --> 00:02:23,360

that made all the difference in the

70

00:02:27,990 --> 00:02:25,040

world

71

00:02:29,830 --> 00:02:28,000

hi my name is anuleka and my question is

72

00:02:33,350 --> 00:02:29,840

what is it like to be away from your

73

00:02:36,070 --> 00:02:33,360

family and people you love

74

00:02:37,750 --> 00:02:36,080

well it is hard to be away from the my

75

00:02:39,990 --> 00:02:37,760

family especially

76
00:02:42,390 --> 00:02:40,000
for a long period of time like this it's

77
00:02:44,949 --> 00:02:42,400
a lot like you know days in the military

78
00:02:47,350 --> 00:02:44,959
when you're deployed and you you're away

79
00:02:49,509 --> 00:02:47,360
from family for a long time i'm glad to

80
00:02:51,190 --> 00:02:49,519
be here i have an important job to do

81
00:02:54,229 --> 00:02:51,200
and i'm proud to be doing this job and

82
00:02:55,990 --> 00:02:54,239
living my dream but the the one downside

83
00:02:58,949 --> 00:02:56,000
is really to be away from my family i

84
00:03:00,470 --> 00:02:58,959
miss my wife and my kids and my baby

85
00:03:02,790 --> 00:03:00,480
granddaughter who was born just a few

86
00:03:04,470 --> 00:03:02,800
weeks before i left i'm staying in touch

87
00:03:07,589 --> 00:03:04,480
with them you know on the phone and

88
00:03:10,149 --> 00:03:07,599

email and my daughter sends me videos

89

00:03:12,390 --> 00:03:10,159

and i can't wait to get home and hug

90

00:03:14,630 --> 00:03:12,400

that little munchkin

91

00:03:16,630 --> 00:03:14,640

hi my name is ian and my question is

92

00:03:18,390 --> 00:03:16,640

without man launches at the cape are

93

00:03:20,070 --> 00:03:18,400

american astronauts going to do space

94

00:03:22,550 --> 00:03:20,080

missions with other countries and will

95

00:03:25,030 --> 00:03:22,560

they be training in europe

96

00:03:26,630 --> 00:03:25,040

yes indeed we are training and launching

97

00:03:28,229 --> 00:03:26,640

from other places

98

00:03:29,990 --> 00:03:28,239

the training for the international space

99

00:03:31,910 --> 00:03:30,000

station flight i went through all of the

100

00:03:34,149 --> 00:03:31,920

basic training once i got assigned to

101

00:03:36,149 --> 00:03:34,159

the flight it was two and a half years

102

00:03:38,789 --> 00:03:36,159

of training and that was really around

103

00:03:42,550 --> 00:03:38,799

the globe you know in the united states

104

00:03:45,030 --> 00:03:42,560

in canada in germany in japan and a lot

105

00:03:46,789 --> 00:03:45,040

in russia because i didn't launch here i

106

00:03:49,430 --> 00:03:46,799

didn't come here on a space shuttle i

107

00:03:51,190 --> 00:03:49,440

came here this time on a russian soyuz

108

00:03:53,110 --> 00:03:51,200

rocket which is a very different

109

00:03:55,429 --> 00:03:53,120

experience and so i i had the

110

00:03:58,149 --> 00:03:55,439

opportunity to live and work in russia

111

00:04:00,070 --> 00:03:58,159

and train over there for many months in

112

00:04:02,309 --> 00:04:00,080

preparation for this and what a great

113

00:04:04,949 --> 00:04:02,319

experience it's been in a in a lot of

114

00:04:06,869 --> 00:04:04,959

ways uh it's it and for me you know

115

00:04:08,309 --> 00:04:06,879

growing up in the days

116

00:04:11,350 --> 00:04:08,319

that i grew up

117

00:04:13,110 --> 00:04:11,360

you know and the whole idea of flying on

118

00:04:15,830 --> 00:04:13,120

a russian rocket and having the freedom

119

00:04:18,870 --> 00:04:15,840

to to move around in russia and and

120

00:04:20,870 --> 00:04:18,880

visit moscow and all of those things is

121

00:04:23,990 --> 00:04:20,880

that's about as mind-blowing as flying

122

00:04:25,350 --> 00:04:24,000

into space is really so it's uh that

123

00:04:27,510 --> 00:04:25,360

and that's where we are right now

124

00:04:29,590 --> 00:04:27,520

because the united states does not have

125

00:04:31,430 --> 00:04:29,600

a human launch capability

126

00:04:33,990 --> 00:04:31,440

we have uh we're dependent on the

127

00:04:35,030 --> 00:04:34,000

russians really for a human launch right

128

00:04:37,350 --> 00:04:35,040

now

129

00:04:39,909 --> 00:04:37,360

and a lot of cargo there's also cargo

130

00:04:43,590 --> 00:04:39,919

ships uh that are launched from japan

131

00:04:45,350 --> 00:04:43,600

and europe uh that come up here uh and

132

00:04:47,189 --> 00:04:45,360

the u.s has a couple of companies that

133

00:04:49,430 --> 00:04:47,199

are very close to uh beginning to

134

00:04:51,749 --> 00:04:49,440

deliver cargo uh

135

00:04:53,189 --> 00:04:51,759

which we need here on the space station

136

00:04:55,030 --> 00:04:53,199

and there's several teams that are

137

00:04:57,590 --> 00:04:55,040

working very hard on coming up with a

138

00:04:59,909 --> 00:04:57,600

human launch capability from the united

139

00:05:01,670 --> 00:04:59,919

states i think we need that i really

140

00:05:03,270 --> 00:05:01,680

applaud you know those efforts and look

141

00:05:05,189 --> 00:05:03,280

forward to supporting those efforts when

142

00:05:08,070 --> 00:05:05,199

i get home

143

00:05:10,070 --> 00:05:08,080

isabel this is a question from aaron do

144

00:05:12,070 --> 00:05:10,080

you feel more energetic in space as

145

00:05:13,749 --> 00:05:12,080

compared to working on earth

146

00:05:14,950 --> 00:05:13,759

okay aaron that's an interesting

147

00:05:17,670 --> 00:05:14,960

question

148

00:05:19,270 --> 00:05:17,680

i i'm not sure i could tell anymore i've

149

00:05:21,270 --> 00:05:19,280

been up here so long i'm completely

150

00:05:23,909 --> 00:05:21,280

adapted i'm now as

151

00:05:25,830 --> 00:05:23,919

you know i'm now a space being i think

152

00:05:28,310 --> 00:05:25,840

in ways maybe more energetic because the

153

00:05:30,469 --> 00:05:28,320

days are just busy we wake up at six

154

00:05:32,230 --> 00:05:30,479

o'clock in the morning we have a bunch

155

00:05:33,990 --> 00:05:32,240

of things we we need to do early in the

156

00:05:35,350 --> 00:05:34,000

morning actually checking on some

157

00:05:37,590 --> 00:05:35,360

experiments

158

00:05:39,350 --> 00:05:37,600

and preparing for the day and then we're

159

00:05:41,430 --> 00:05:39,360

working really hard all day long we get

160

00:05:42,870 --> 00:05:41,440

a short break for lunch

161

00:05:44,790 --> 00:05:42,880

and and then we're working it into

162

00:05:46,629 --> 00:05:44,800

dinner and and past that a little bit so

163

00:05:48,469 --> 00:05:46,639

the days are so busy

164

00:05:50,469 --> 00:05:48,479

time flies by

165

00:05:52,550 --> 00:05:50,479

and and so you just have to be going

166

00:05:55,270 --> 00:05:52,560

constantly and so i think my energy

167

00:05:57,909 --> 00:05:55,280

level is pretty high up here uh but it's

168

00:05:59,990 --> 00:05:57,919

it's pretty high on the earth too uh

169

00:06:01,830 --> 00:06:00,000

physically it's easier to be here though

170

00:06:04,390 --> 00:06:01,840

because we just float

171

00:06:06,629 --> 00:06:04,400

you know and and so i don't have to hold

172

00:06:08,550 --> 00:06:06,639

my body up while i'm moving around and

173

00:06:10,230 --> 00:06:08,560

doing things sometimes it's kind of hard

174

00:06:11,670 --> 00:06:10,240

to hold my body still while i'm doing

175

00:06:13,670 --> 00:06:11,680

things and that's a different thing

176
00:06:14,550 --> 00:06:13,680
because when i push on something i push

177
00:06:16,469 --> 00:06:14,560
on it

178
00:06:17,909 --> 00:06:16,479
and it it pushes me away from it and so

179
00:06:20,309 --> 00:06:17,919
sometimes it gets a little hard and

180
00:06:21,670 --> 00:06:20,319
frustrating to do things up here in

181
00:06:22,870 --> 00:06:21,680
general though i think it's a little

182
00:06:24,950 --> 00:06:22,880
easier

183
00:06:26,790 --> 00:06:24,960
physically living up here than living on

184
00:06:29,189 --> 00:06:26,800
the ground but you also have to be ready

185
00:06:31,909 --> 00:06:29,199
to come back to the ground too

186
00:06:35,909 --> 00:06:31,919
my name is jenny and my question is from

187
00:06:38,469 --> 00:06:35,919
alexis at maxwell air force base

188
00:06:40,469 --> 00:06:38,479

how much space debris do you see

189

00:06:41,909 --> 00:06:40,479

and does it pose a danger to the space

190

00:06:43,270 --> 00:06:41,919

station

191

00:06:46,309 --> 00:06:43,280

hey alexis

192

00:06:49,510 --> 00:06:46,319

we don't i i've never seen a space

193

00:06:52,710 --> 00:06:49,520

debris that i know was space debris i've

194

00:06:55,670 --> 00:06:52,720

seen satellites uh in the uh close to

195

00:06:57,670 --> 00:06:55,680

dawn just like you can on the ground on

196

00:07:00,070 --> 00:06:57,680

the ground you can see us the space

197

00:07:02,469 --> 00:07:00,080

station and you can see satellites

198

00:07:05,589 --> 00:07:02,479

if it's just within an hour or two hours

199

00:07:07,510 --> 00:07:05,599

after sunset or just before sunrise

200

00:07:10,790 --> 00:07:07,520

when we're in the light up here and the

201
00:07:12,950 --> 00:07:10,800
ground is dark uh we had actually uh

202
00:07:15,510 --> 00:07:12,960
last night we flew over houston and my

203
00:07:17,029 --> 00:07:15,520
family went outside to or two nights ago

204
00:07:19,749 --> 00:07:17,039
to see

205
00:07:21,029 --> 00:07:19,759
us as we flew over the top and so i was

206
00:07:23,589 --> 00:07:21,039
talking to them

207
00:07:25,909 --> 00:07:23,599
while it was we were in the sunlight up

208
00:07:26,710 --> 00:07:25,919
here but it was already dark at home

209
00:07:31,430 --> 00:07:26,720
so

210
00:07:33,670 --> 00:07:31,440
satellites and stuff we can't see it it

211
00:07:36,150 --> 00:07:33,680
is a threat though it is a threat and

212
00:07:38,950 --> 00:07:36,160
the ground is tracking thousands of

213
00:07:40,950 --> 00:07:38,960

pieces of old satellites and things like

214

00:07:42,469 --> 00:07:40,960

that that would be a threat to us

215

00:07:44,469 --> 00:07:42,479

several times we've had to do some

216

00:07:46,790 --> 00:07:44,479

maneuvers where we changed the orbit of

217

00:07:49,909 --> 00:07:46,800

the space station to get out of the way

218

00:07:51,350 --> 00:07:49,919

or get get further away from a piece of

219

00:07:53,670 --> 00:07:51,360

space junk

220

00:07:55,589 --> 00:07:53,680

and there was one time i think it was

221

00:07:57,670 --> 00:07:55,599

back around the end of june

222

00:07:59,510 --> 00:07:57,680

where we actually found out about a

223

00:08:01,670 --> 00:07:59,520

piece of space junk that was coming

224

00:08:04,070 --> 00:08:01,680

toward us getting kind of close

225

00:08:05,990 --> 00:08:04,080

uh and we're not certain exactly where

226
00:08:08,629 --> 00:08:06,000
how close it's going to be because these

227
00:08:11,270 --> 00:08:08,639
things are uh are hard to measure from

228
00:08:14,790 --> 00:08:11,280
the ground but it was too it we learned

229
00:08:17,589 --> 00:08:14,800
about it uh with without enough time to

230
00:08:19,990 --> 00:08:17,599
actually change the orbit to avoid it

231
00:08:21,670 --> 00:08:20,000
and so that was a little bit scary we

232
00:08:24,230 --> 00:08:21,680
had to close all of the hatches on the

233
00:08:26,150 --> 00:08:24,240
space station and then go into our soyuz

234
00:08:27,830 --> 00:08:26,160
spacecraft just in case part of the

235
00:08:29,830 --> 00:08:27,840
space station got hit so we would be

236
00:08:31,589 --> 00:08:29,840
safe and be ready to come home if we

237
00:08:34,149 --> 00:08:31,599
needed to

238
00:08:35,909 --> 00:08:34,159

hello my name's kate and after my

239

00:08:37,829 --> 00:08:35,919

grandfather had a stroke he underwent

240

00:08:39,589 --> 00:08:37,839

lots of physical therapy so that his

241

00:08:41,509 --> 00:08:39,599

muscles didn't atrophy

242

00:08:42,870 --> 00:08:41,519

i've heard that the same is true for

243

00:08:45,430 --> 00:08:42,880

being in space

244

00:08:47,110 --> 00:08:45,440

if so is there an exercise regimen that

245

00:08:49,910 --> 00:08:47,120

you must do to limit the amount of

246

00:08:51,990 --> 00:08:49,920

muscle degradation

247

00:08:54,790 --> 00:08:52,000

kate that's very good insight and a good

248

00:08:57,030 --> 00:08:54,800

comparison because yes indeed we are

249

00:08:59,750 --> 00:08:57,040

in in conditions up here that are very

250

00:09:01,750 --> 00:08:59,760

much like bed rest or somebody with an

251
00:09:04,550 --> 00:09:01,760
ailment like your grandfather

252
00:09:06,389 --> 00:09:04,560
and so we do have to do exercises now

253
00:09:08,790 --> 00:09:06,399
lifting weights doesn't make much sense

254
00:09:11,110 --> 00:09:08,800
up here where everything's weightless uh

255
00:09:13,910 --> 00:09:11,120
but we have a kind of a it's similar to

256
00:09:15,030 --> 00:09:13,920
a universal gym that you might see

257
00:09:17,590 --> 00:09:15,040
that has

258
00:09:19,269 --> 00:09:17,600
it uses pressure cylinders and then kind

259
00:09:21,030 --> 00:09:19,279
of a series of levers and stuff and we

260
00:09:23,750 --> 00:09:21,040
could do a lot of exercises that are

261
00:09:26,230 --> 00:09:23,760
very valuable and very beneficial for us

262
00:09:27,509 --> 00:09:26,240
on that so that's the resistive exercise

263
00:09:30,389 --> 00:09:27,519

that helps

264

00:09:32,230 --> 00:09:30,399

keep our muscles strong and it also

265

00:09:33,829 --> 00:09:32,240

helps our bones because you put that

266

00:09:35,590 --> 00:09:33,839

load on your bones right now and i'm

267

00:09:37,829 --> 00:09:35,600

just floating around in here my bones

268

00:09:39,910 --> 00:09:37,839

aren't doing their job on the ground for

269

00:09:41,990 --> 00:09:39,920

you right now your bones are holding you

270

00:09:44,470 --> 00:09:42,000

up and that stimulates the bones to keep

271

00:09:47,269 --> 00:09:44,480

them strong up here we lose bone mass we

272

00:09:50,470 --> 00:09:47,279

begin to lose bone mass in hours within

273

00:09:52,389 --> 00:09:50,480

hours of arriving in in in space

274

00:09:54,630 --> 00:09:52,399

and so we have to stimulate those bones

275

00:09:57,030 --> 00:09:54,640

through this kind of exercise and we do

276

00:09:59,269 --> 00:09:57,040

aerobic exercise for our heart and lungs

277

00:10:01,350 --> 00:09:59,279

and cardiovascular system using an

278

00:10:03,269 --> 00:10:01,360

exercise bike i actually have it it's

279

00:10:05,829 --> 00:10:03,279

right here the exercise bikes in this

280

00:10:07,670 --> 00:10:05,839

room and we have a treadmill

281

00:10:09,590 --> 00:10:07,680

you you might think it's odd that we

282

00:10:11,670 --> 00:10:09,600

have a treadmill and we obviously can't

283

00:10:13,190 --> 00:10:11,680

just step onto it and start running we

284

00:10:14,870 --> 00:10:13,200

have to use a harness that's a lot like

285

00:10:16,630 --> 00:10:14,880

a backpacking harness and then the

286

00:10:19,509 --> 00:10:16,640

series of cords it's like bungee

287

00:10:21,829 --> 00:10:19,519

stretchy bungee cords that hold us down

288

00:10:23,509 --> 00:10:21,839

to the treadmill so we can run and

289

00:10:25,670 --> 00:10:23,519

that's how we keep our heart and lungs

290

00:10:27,670 --> 00:10:25,680

healthy and we have to do that every day

291

00:10:29,750 --> 00:10:27,680

one of the experiments i'm doing up here

292

00:10:32,470 --> 00:10:29,760

is actually as a guinea pig

293

00:10:34,870 --> 00:10:32,480

where i'm the guinea pig for a new

294

00:10:37,670 --> 00:10:34,880

exercise

295

00:10:40,389 --> 00:10:37,680

plan or schedule

296

00:10:43,190 --> 00:10:40,399

less time doing the exercise but harder

297

00:10:45,430 --> 00:10:43,200

or higher intensity and so instead of

298

00:10:48,150 --> 00:10:45,440

just going out and running for an hour i

299

00:10:50,470 --> 00:10:48,160

will go we're on wind sprints

300

00:10:52,230 --> 00:10:50,480

on the treadmill and things like that

301
00:10:54,069 --> 00:10:52,240
and it seems to be working out really

302
00:10:56,150 --> 00:10:54,079
well i'm i'm excited about the the

303
00:10:58,310 --> 00:10:56,160
program it's a hard one to be a be a

304
00:11:00,470 --> 00:10:58,320
subject in because that means i'm

305
00:11:02,310 --> 00:11:00,480
you know i'm i do a lot of sweating but

306
00:11:04,630 --> 00:11:02,320
it's uh it's really good research and it

307
00:11:07,110 --> 00:11:04,640
has paybacks too because they can study

308
00:11:09,190 --> 00:11:07,120
in me in a few months what takes place

309
00:11:10,150 --> 00:11:09,200
in patients and people on the ground

310
00:11:12,310 --> 00:11:10,160
over

311
00:11:14,790 --> 00:11:12,320
you know long longer periods of time or

312
00:11:15,990 --> 00:11:14,800
even years and so by studying my body's

313
00:11:18,550 --> 00:11:16,000

response

314

00:11:20,470 --> 00:11:18,560

up here in this six month time we can

315

00:11:23,110 --> 00:11:20,480

use that then to help other people

316

00:11:25,509 --> 00:11:23,120

hopefully like your grandfather

317

00:11:28,550 --> 00:11:25,519

julia and my question is do you have to

318

00:11:30,470 --> 00:11:28,560

speak other languages on the iss yeah

319

00:11:32,230 --> 00:11:30,480

julia that that's a very interesting

320

00:11:33,990 --> 00:11:32,240

question because it is the international

321

00:11:35,990 --> 00:11:34,000

space station there's 15 countries

322

00:11:38,150 --> 00:11:36,000

working together in partnership here

323

00:11:41,030 --> 00:11:38,160

right now on board the space station we

324

00:11:43,509 --> 00:11:41,040

have one american one japanese astronaut

325

00:11:46,470 --> 00:11:43,519

and one russian cosmonaut

326

00:11:48,790 --> 00:11:46,480

and so you're you will likely hear all

327

00:11:50,710 --> 00:11:48,800

three languages in a given day there's

328

00:11:53,350 --> 00:11:50,720

more russian and uh

329

00:11:55,750 --> 00:11:53,360

and english being spoken every once in a

330

00:11:57,829 --> 00:11:55,760

while now satoshi and the japanese

331

00:11:59,750 --> 00:11:57,839

ground control team are very fluent in

332

00:12:01,430 --> 00:11:59,760

english but every once in a while if

333

00:12:03,670 --> 00:12:01,440

they get into something that's very

334

00:12:06,150 --> 00:12:03,680

complicated and hard to translate

335

00:12:08,230 --> 00:12:06,160

they'll switch over to japanese

336

00:12:10,550 --> 00:12:08,240

i don't know any japanese not i can't

337

00:12:13,110 --> 00:12:10,560

get much further than good morning

338

00:12:15,190 --> 00:12:13,120

but we we are required to learn russian

339

00:12:17,590 --> 00:12:15,200

and become achieve a certain level of

340

00:12:18,870 --> 00:12:17,600

proficiency in the russian language

341

00:12:21,030 --> 00:12:18,880

that's because we're launching on a

342

00:12:23,030 --> 00:12:21,040

russian rocket and the displays and

343

00:12:26,230 --> 00:12:23,040

controls in that spaceship are all in

344

00:12:27,750 --> 00:12:26,240

russian as are the procedures and so we

345

00:12:30,470 --> 00:12:27,760

have to be able to work as part of that

346

00:12:31,750 --> 00:12:30,480

spacecraft crew to get to and from the

347

00:12:33,590 --> 00:12:31,760

space station

348

00:12:35,590 --> 00:12:33,600

uh it is interesting though if you

349

00:12:37,750 --> 00:12:35,600

listen to a conversation with the three

350

00:12:40,790 --> 00:12:37,760

of us you'll hear

351

00:12:43,509 --> 00:12:40,800

constantly hear a mix of russian and

352

00:12:45,990 --> 00:12:43,519

english being spoken with people you

353

00:12:46,949 --> 00:12:46,000

know preferring to speak their native

354

00:12:48,949 --> 00:12:46,959

tongue

355

00:12:50,790 --> 00:12:48,959

but the other guys have enough

356

00:12:53,350 --> 00:12:50,800

understanding of it to understand what

357

00:12:55,670 --> 00:12:53,360

they're saying but not quite enough over

358

00:12:57,269 --> 00:12:55,680

the edge maybe to speak it as fluently

359

00:12:59,110 --> 00:12:57,279

and so it'd be real confusing for

360

00:13:01,509 --> 00:12:59,120

somebody that didn't understand russian

361

00:13:02,710 --> 00:13:01,519

to listen to us having a discussion over

362

00:13:03,990 --> 00:13:02,720

lunch

363

00:13:06,470 --> 00:13:04,000

and i think that learning another

364

00:13:07,990 --> 00:13:06,480

language like that is really really

365

00:13:10,230 --> 00:13:08,000

important and we don't i don't think we

366

00:13:12,629 --> 00:13:10,240

pay enough attention to that that

367

00:13:15,269 --> 00:13:12,639

learning another language really opens

368

00:13:17,750 --> 00:13:15,279

opens your mind up to another culture to

369

00:13:20,069 --> 00:13:17,760

another way to other ideas that can't be

370

00:13:22,629 --> 00:13:20,079

expressed in english and it makes the

371

00:13:24,949 --> 00:13:22,639

world a much more enjoyable place if you

372

00:13:27,829 --> 00:13:24,959

have the chance to go to another place

373

00:13:29,350 --> 00:13:27,839

and use this language and really enjoy

374

00:13:31,190 --> 00:13:29,360

everything there is to benefit from

375

00:13:33,829 --> 00:13:31,200

there

376

00:13:35,910 --> 00:13:33,839

my name is angela and my question is

377

00:13:38,069 --> 00:13:35,920

what types of experiments have you been

378

00:13:39,750 --> 00:13:38,079

working on and what have you learned

379

00:13:42,949 --> 00:13:39,760

from them

380

00:13:45,430 --> 00:13:42,959

hey angela that that's a very worth a

381

00:13:47,110 --> 00:13:45,440

very good question we're standing or i'm

382

00:13:49,670 --> 00:13:47,120

i'm floating in the

383

00:13:51,750 --> 00:13:49,680

the u.s laboratory right now i'm

384

00:13:53,990 --> 00:13:51,760

surrounded by different experiments

385

00:13:57,269 --> 00:13:54,000

right above me here is a furnace

386

00:13:58,629 --> 00:13:57,279

that that it takes special metal samples

387

00:14:00,470 --> 00:13:58,639

it heats them up to very high

388

00:14:02,389 --> 00:14:00,480

temperatures and then it's a has a very

389

00:14:04,470 --> 00:14:02,399

complicated mechanism inside

390

00:14:07,189 --> 00:14:04,480

that allows well the heating and cooling

391

00:14:09,189 --> 00:14:07,199

of these rod these sample rods at

392

00:14:11,509 --> 00:14:09,199

different rates and they can measure

393

00:14:13,910 --> 00:14:11,519

what happens to the metals

394

00:14:16,550 --> 00:14:13,920

in gravity when you heat metals up when

395

00:14:17,430 --> 00:14:16,560

you melt things that the the liquids

396

00:14:19,430 --> 00:14:17,440

will

397

00:14:21,269 --> 00:14:19,440

settle out based on their density where

398

00:14:22,230 --> 00:14:21,279

the heavier stuff will settle to the

399

00:14:24,069 --> 00:14:22,240

bottom

400

00:14:25,750 --> 00:14:24,079

lighter stuff rises to the top and you

401
00:14:28,949 --> 00:14:25,760
get these currents that are moving

402
00:14:30,710 --> 00:14:28,959
inside your your your sample up here you

403
00:14:33,829 --> 00:14:30,720
don't have that and so you get a much

404
00:14:35,350 --> 00:14:33,839
more pure uh crystals when even metal

405
00:14:37,430 --> 00:14:35,360
and you can't see it but metals when

406
00:14:39,509 --> 00:14:37,440
they cool off they crystallize and you

407
00:14:41,990 --> 00:14:39,519
can learn a lot about these things right

408
00:14:44,310 --> 00:14:42,000
here is a combustion facility we burn

409
00:14:46,550 --> 00:14:44,320
fires in there it's all contained inside

410
00:14:48,069 --> 00:14:46,560
a special test chamber but it's certain

411
00:14:50,310 --> 00:14:48,079
that test chamber is surrounded by

412
00:14:51,750 --> 00:14:50,320
cameras and special instruments and

413
00:14:53,990 --> 00:14:51,760

we're studying

414

00:14:57,430 --> 00:14:54,000

flames and not just not not simple

415

00:14:59,189 --> 00:14:57,440

flames but the physics of a flame

416

00:15:00,790 --> 00:14:59,199

and really getting in because in on

417

00:15:03,189 --> 00:15:00,800

earth there's a lot of the processes in

418

00:15:05,590 --> 00:15:03,199

a flame that are driven by gravity and

419

00:15:07,269 --> 00:15:05,600

buoyancy forces and up here we don't

420

00:15:09,110 --> 00:15:07,279

have that and they're studying what's

421

00:15:10,870 --> 00:15:09,120

what's called the flame boundaries what

422

00:15:13,670 --> 00:15:10,880

conditions are

423

00:15:15,750 --> 00:15:13,680

our flames stable and and and when do

424

00:15:18,550 --> 00:15:15,760

they become unstable and they're they're

425

00:15:21,910 --> 00:15:18,560

unlocking the physics of the flame

426

00:15:24,150 --> 00:15:21,920

with the hope of learning more about

427

00:15:25,670 --> 00:15:24,160

producing combustion

428

00:15:27,590 --> 00:15:25,680

uh

429

00:15:29,590 --> 00:15:27,600

burners and heaters on the earth that

430

00:15:31,350 --> 00:15:29,600

are a little more efficient if you could

431

00:15:33,350 --> 00:15:31,360

find a way to make them just a fraction

432

00:15:35,030 --> 00:15:33,360

of a percent more efficient on earth

433

00:15:37,509 --> 00:15:35,040

you'd be saving you know millions or

434

00:15:39,829 --> 00:15:37,519

billions of dollars every year in energy

435

00:15:41,990 --> 00:15:39,839

costs so it's things like that we've got

436

00:15:44,069 --> 00:15:42,000

plant growth going on we have fluid

437

00:15:46,470 --> 00:15:44,079

physics things uh fluid physics

438

00:15:47,910 --> 00:15:46,480

experiments going on as well as you know

439

00:15:49,430 --> 00:15:47,920

guys like me that are the guinea pig

440

00:15:51,670 --> 00:15:49,440

where they're studying my muscles and

441

00:15:53,829 --> 00:15:51,680

bones there's a lot of great stuff going

442

00:15:55,829 --> 00:15:53,839

on up

443

00:15:57,590 --> 00:15:55,839

commander you've got uh

444

00:15:59,590 --> 00:15:57,600

deputy secretary tony miller coming back

445

00:16:01,910 --> 00:15:59,600

to you well first of all thank you so

446

00:16:04,790 --> 00:16:01,920

much uh for your service

447

00:16:07,350 --> 00:16:04,800

for your willingness to be a guinea pig

448

00:16:09,350 --> 00:16:07,360

and for the real inspiration

449

00:16:12,230 --> 00:16:09,360

that you're providing both to me and to

450

00:16:13,110 --> 00:16:12,240

the students here uh it's uh

451

00:16:14,949 --> 00:16:13,120

you know

452

00:16:17,110 --> 00:16:14,959

what you and the crew are doing and the

453

00:16:19,110 --> 00:16:17,120

importance of science and the importance

454

00:16:22,310 --> 00:16:19,120

of of doing it in a international and

455

00:16:25,189 --> 00:16:22,320

global way really is a great kickoff to

456

00:16:26,629 --> 00:16:25,199

our international education week and i

457

00:16:28,629 --> 00:16:26,639

really appreciate your time given your

458

00:16:30,310 --> 00:16:28,639

busy schedule

459

00:16:32,470 --> 00:16:30,320

well thank you very much the questions

460

00:16:34,550 --> 00:16:32,480

have been outstanding these these kids

461

00:16:37,030 --> 00:16:34,560

are they are paying attention they are

462

00:16:38,710 --> 00:16:37,040

thinking they're obviously

463

00:16:40,550 --> 00:16:38,720

questioning the world around them and

464

00:16:41,430 --> 00:16:40,560

how it works and that's a wonderful

465

00:16:43,430 --> 00:16:41,440

thing

466

00:16:45,509 --> 00:16:43,440

technology gets a bad rap sometimes

467

00:16:47,910 --> 00:16:45,519

because technology has some downsides

468

00:16:50,069 --> 00:16:47,920

and we we we hear about that in terms of

469

00:16:51,749 --> 00:16:50,079

potential global warming sources

470

00:16:54,790 --> 00:16:51,759

pollution

471

00:16:57,509 --> 00:16:54,800

energy crises and things like that but

472

00:16:59,670 --> 00:16:57,519

the solution the solutions for tomorrow

473

00:17:01,910 --> 00:16:59,680

really come from technology too finding

474

00:17:03,269 --> 00:17:01,920

ways to do that energy a little cleaner

475

00:17:05,429 --> 00:17:03,279

a little cheaper

476

00:17:07,829 --> 00:17:05,439

another way finding ways to be better

477

00:17:10,390 --> 00:17:07,839

stewards of our air our water our

478

00:17:12,069 --> 00:17:10,400

natural resources and those those things

479

00:17:15,669 --> 00:17:12,079

are going to come from technology the

480

00:17:19,590 --> 00:17:16,829

you know and

481

00:17:21,110 --> 00:17:19,600

engineering can lead you to and i

482

00:17:22,949 --> 00:17:21,120

encourage the kids there is no dream

483

00:17:24,309 --> 00:17:22,959

that's too big i grew up in one of the

484

00:17:27,110 --> 00:17:24,319

poorest parts of the country on the

485

00:17:28,789 --> 00:17:27,120

border of south texas and i had a crazy

486

00:17:29,830 --> 00:17:28,799

dream about flying in space and here i

487

00:17:31,750 --> 00:17:29,840

am today as a commander of the

488

00:17:33,830 --> 00:17:31,760

international space station there is no

489

00:17:37,350 --> 00:17:33,840

dream that's too crazy there really

490

00:17:40,630 --> 00:17:37,360

isn't you can do it follow your passion

491

00:17:42,390 --> 00:17:40,640

ask the questions and work dig in and

492

00:17:44,870 --> 00:17:42,400

enjoy the journey because it's a

493

00:17:47,350 --> 00:17:44,880

fantastic journey and we need you to be

494

00:17:49,510 --> 00:17:47,360

out there thinking and engaged and

495

00:17:50,710 --> 00:17:49,520

helping us for the days ahead thank you

496

00:17:53,350 --> 00:17:50,720

very much

497

00:17:55,110 --> 00:17:53,360

perhaps one last thing i i understand

498

00:17:58,150 --> 00:17:55,120

there's something called stupid

499

00:18:06,310 --> 00:17:58,160

astronaut tricks

500

00:18:11,029 --> 00:18:08,390

how about a chocolate covered

501

00:18:13,110 --> 00:18:11,039

or a candy coated chocolate can

502

00:18:22,230 --> 00:18:13,120

peanut here

503

00:18:42,870 --> 00:18:23,669

you guys probably don't believe i'm

504

00:18:46,630 --> 00:18:44,390

thank you very much you've been a great

505

00:18:48,710 --> 00:18:46,640

crowd and keep asking those questions